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series. A new, but this time a true, system of phrenology will be founded upon them; by this, however, I do not mean that it will be possible to tell a man's faculties by the configuration of his skull, but that the various mental faculties will be assigned to definite territories of the brain, as Gall and Spurzheim long ago maintained, although their geography of the brain was erroneous.—Prof. RUTHERFORD *in Nature.*

Dr. Brown Sequard has called in question the conclusions given above in lectures delivered in Boston last March.

RATE OF GROWTH IN MAN.—In an interesting account of the life and works of the late Belgian anthropologist and statistician, Adolphe Quetelet, published in "La Revue Scientifique," occur the following remarks on the rate of growth in man. "The most rapid growth takes place immediately after birth; the infant in the space of a year grows about two decimetres.* The increase in size diminishes gradually as its age increases, up towards the age of four or five years; when about three it attains half the size which it is to become when full-grown. When from four to five years of age the increase in size is very regular each year up to sixteen years, that is to say up to the age of puberty; this annual increase is nearly fifty-six millimetres. After the age of puberty the size continues to increase, but feebly; when from sixteen to seventeen years old the individual increases four centimetres (·60 inch). In the two years following, it increases only one inch. The total increase in size of man does not appear to be entirely terminated when he is twenty-five years old. The mean size is a little larger in cities than in the country."

MICROSCOPY.

NEW ROTATING MICROSCOPE.—Mr. Browning has introduced into England the continental fashion of attaching the bar of the microscope to the stage which is made to revolve carrying the body with it. This, of course, gives a rotating stage without any difficulty in regard to centring. Any tremor, also, connected with the revolving apparatus is common to the object and the magnifying apparatus, and is therefore of little consequence. For objects illuminated from below, this arrangement is practically as good as the more difficult and expensive plan of rotating the stage only; though for objects illuminated from above it is less convenient. It is also made binocular.

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*A decimetre is one-tenth of a metre, amounting to nearly four inches.

MOUNTING DIATOMS.—It is due to Dr. Christopher Johnston of Baltimore, to say that I am indebted to his very valuable paper, on the "Preparation of Diatomaceæ" for the method of retaining the diatoms in place, mentioned in my note. If dry mounting is preferred, I have found by experiment, that the diatoms may be arranged as before stated on the cover, without the gelatine coat, and fixed in place by moistening with vapor as before stated. This plan has some advantages for real study.—W. W. RINER.

BLOOD CRYSTALS.—The detection of blood by finding its crystals is a much easier process than has been thought, and is also much more generally applicable. In blood decomposed, or that has been treated by acids or caustic alkali, hæmoglobin is changed into a new substance; hæmatin is formed, which, combined with hydrochloric acid, gives characteristic crystals. In order to obtain them we must proceed thus: A small fragment of dried blood is placed on a slide; it is dissolved in a drop of water, and a minute portion of sea-salt is added. It is covered with a thin slide, and pure acetic acid is made to pass between the two slides, and it is heated over a spirit-lamp to boiling point. Acetic acid is again added, and it is heated afresh; this is repeated till the crystals are obtained. They are rhomboidal, of a dirty brown color, quite characteristic, and require to be seen with a magnifying power of three hundred or four hundred diameters. With the smallest quantity of blood this reaction can always be produced.—*Popular Science Review*.

TOLLES' NEW IMMERSION $\frac{1}{6}$TH.—About three weeks since I received from Mr. R. B. Tolles a $\frac{1}{6}$th immersion objective, similar to the one purchased by Mr. Crisp of London (see M. M. J. for March 1874). Mr. Tolles claims for this objective an angle of 180° in air and about 100° in balsam. Simple appliances at my command demonstrate I think conclusively that this glass will receive and convey to the eye "image-forming rays" incident to the front surface of front lens at an angle of 10° = aperture of 160. The performances of this new $\frac{1}{6}$th are at once novel and remarkable, on *Amphipleura pellucida* (dry) it shows the transverse striæ with singular beauty. The "lines" appearing to shine with golden lustre. Specimens of *Frustulia saxonica* (very small) that have persistently defeated a fine modern $\frac{1}{16}$th in my possession, my Tolles wet $\frac{1}{10}$, as also a $\frac{1}{15}$th belonging to a friend, surrender at once to this $\frac{1}{6}$th giving strong transverse striæ. The markings of *Surriella gemma* (dry mounted) are shown very strongly. Either as dots or hexagons, mounted in balsam the markings are much stronger than I have before seen with any lens. The behavior of this $\frac{1}{6}$th over *Cymatopleura elliptica* excited my unqualified admiration. In short "this most interesting glass," goes satisfactorily through my collection of test diatoms. The illumination used was (for the most part) from a German student's lamp. The maximum performance of the $\frac{1}{6}$th is obtained by working through a thick cover, say $\frac{1}{75}$th of an inch; with such a cover the objective works well dry, using central or nearly central light. Perhaps the most valuable property of the new $\frac{1}{6}$th will be recognized in its superior performances by centrally disposed light. With the experience I have had of the $\frac{1}{6}$th in this direction I am forced to the conclusion that these new system glasses of Mr. Tolles will become equally valuable to histologists and diatomists. — J. EDWARDS SMITH, *Ashtabula*, *O.*, *July*, 1874.

NOTES.

THE HARTFORD MEETING of the American Association for the Advancement of Science was in several ways a great success. The register exhibited the names of about 225 old members who were present, and 118 new members were elected. 165 papers were entered, ten of which were not passed by the Standing Committee for the want of abstracts, and twenty others were either withdrawn by their authors or declined by the Sectional Committees, leaving sixty-six papers in Section A, and sixty-nine in Section B. Of those in Section B, ten were given by title only, and the rest were read by their authors before the section or proper subsection, and were more or less discussed. Section A formed a subsection of chemistry on Monday afternoon, which was very strongly represented and held its session until Tuesday evening. The additional interest taken by the chemists in the Hartford meeting was undoubtedly owing to the resolutions passed at Northumberland, by which they declared that it was unadvisable to form a separate